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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,917	09/22/2004	Bernard Aspar	034299-600	8166

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Thelen Reid & Priest  
P O Box 640640  
San Jose, CA 95164-0640

EXAMINER
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MAZUMDAR, SONYA

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 05/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/508,917

**Applicant(s)**

ASPAR ET AL.

**Examiner**

Sonya Mazumdar

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's amendment, see page 6, filed March 30, 2006, with respect to the specification have been fully considered and the objection has been withdrawn.
2. Applicant's amendments, see page 6, filed March 30, 2006, with respect to the rejection of claims 3 and 8 under 35 USC 112 have been fully considered, and the rejection has been withdrawn.
3. Applicant's arguments filed pages 6 and 7, with respect to the rejection of claims 1, 2, 3, 4, 5, 7, and 8 under 35 USC 102(b) have been fully considered and are persuasive. However, with the addition of claim 11, it is not deemed necessary to teach steps a through e of claim 1 in that particular order. Furthermore, the claims are rejected on new grounds in view of Roberds et al. (US 6638835) and Malloy et al. (US 5455202)
4. Applicant's arguments filed pages 8, with respect to the rejection of claim 6 under 35 USC 103(a) have been fully considered but they are not persuasive. The rejection of claim 6 is maintained as being dependant of rejected claim 1.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claims 1 through 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the handle support" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 is unclear with regards to how a layer of material (18) relates to a donor substrate (10).

Claims 8, 9, and 10 each recites the limitation "the detachment step" in the first line of each claim. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102/103***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
9. Claims 1 through 6, 8, 11, and 12 are rejected under 35 U.S.C. 102(a) and 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Roberds et al.

With respect to claims 1 through 6 and 12, Roberds et al. teach a method relating to the transfer of substrates of semiconductors. A device (12) is formed on a first substrate (16) and is attached by an adhesive polymer film (26) underneath a carrier substrate (28) with backside recesses (30) (column 3, lines 64-66; column 4, line 8; Figures 3 and 4). The first substrate is planarized by chemical/mechanical polishing or etching, while also dissolving the polymer film (column 5, lines 14-17 and lines 60-66; Figure 4). The carrier substrate and device is then bonded to a target substrate and the carrier substrate delaminates and is removed (Figures 7 and 8).

With respect to claim 11, Roberds et al. teach heating a polymer film to its decomposition point while the bond between the device layer and target substrate continues to strengthen (column 6, lines 6-12). Although Roberds et al. does not

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specifically teach decomposing the adherence of a polymer film before bonding the device layer and the target substrate, it is inherent that in the transfer process to weaken the adhesive layer between the carrier substrate and device layer. However, if it not inherent, it would have been obvious to weaken the adhesive layer between the carrier substrate and device layer to make removal of the carrier substrate from the target substrate easier after transfer of the device layer.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 2, 3, 8, 10, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malloy et al. in view of Bendik et al. (US 5591678)

With respect to claims 1, 2, 3, 8, 10, 11, and 12, Malloy et al. teach manufacturing a microelectronic device by transfer between two substrates. A microelectronic circuit (48) is formed on a first substrate (40) and is attached underneath a temporary substrate (52) with a removable adhesive wax layer (54), namely glycol phthalate, that softens when heated (abstract; column 4, lines 15-26). The first substrate is thinned away by exposing it to plasma etching or etching with solvent by using potassium hydroxide or sodium hydroxide etchants (column 4, lines 26-28 and lines 38-46). The temporary substrate transfers the circuit to a second substrate (58); the temporary substrate is removed thereafter by melting the adhesive wax layer by placing the

assembly into a hot plate, a tool is inserted between the temporary substrate and the device layer to be popped apart (column 5, lines 49-53; Figure 1).

However, Malloy et al. do not disclose any specific ability to degrade a wax layer besides heating. Bendik et al. teach softening of glycol phthalate layer (64) by potassium hydroxide or sodium hydroxide solution very slowly (column 5, lines 63-65).

It would have been obvious to Malloy et al. that the use of potassium hydroxide or sodium hydroxide solutions would degrade the wax layer and would have been motivated to degrade the wax layer while thinning the first substrate, and before affixing to a second substrate, for easier removal of the temporary substrate.

12. Claim 9 are rejected under 35 U.S.C. 103(a) as being obvious over Roberds et al. as applied to claim 1, and further in view of Rayssac et al. (US 6821376)

The applied reference has two common inventors with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing

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that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

The teachings of claim 1 are as described above.

With respect to claim 9, Roberds et al. does not teach a method of separating devices from a carrier by applying a fluid. Rayssac et al. teach separating a chip from a handle plate by means of a transfer fluid (column 9, lines 53-55; Figure 5E).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a transfer fluid as Rayssac et al. taught and would have been motivated to do so as a separation procedure that does not require manual handling.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonya Mazumdar whose telephone number is (571) 272-6019. The examiner can normally be reached on 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.




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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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CURTIS MAYES  
PRIMARY EXAMINER